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- 1. A system for repositioning teeth from an initial tooth arrangement to a final tooth arrangement, said system comprising a plurality of dental incremental position adjustment appliances including:
- a first appliance having a geometry selected to reposition the teeth from the initial tooth arrangement to a first intermediate arrangement;

one or more intermediate appliances having geometries selected to progressively reposition the teeth from the first intermediate arrangement to successive intermediate arrangements; and

a final appliance having a geometry selected to progressively reposition the teeth from the last intermediate arrangement to the final tooth arrangement;

wherein the surface of each appliance has a lubricious composition coupled thereto.

- 2. A system as in claim 1, wherein the appliances comprise polymeric shells having cavities shaped to receive and resiliently reposition teeth from one arrangement to a successive arrangement.
- 3. A system as in claim 2, wherein the tooth positions defined by the cavities in each successive appliance differ from those defined by the prior appliance by no more than 2 mm.
  - 4. A system as in claim 1, comprising at least two intermediate appliances.
  - A system as in claim 4, comprising at least ten intermediate appliances. 5.
- 6. A system as in claim 5 comprising at least twenty-five intermediate appliances.
- A method for repositioning teeth from an initial tooth arrangement to a final 7. tooth arrangement, said method comprising:

placing a first incremental position adjustment appliance in a patient's mouth, wherein the first appliance has a geometry selected to reposition the teeth from the initial

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tooth arrangement to a first mediate arrangement:

successively replacing one or more additional appliances, wherein the additional appliances have geometries selected to progressively reposition the teeth from the first intermediate arrangement to successive intermediate arrangements; and

placing a final appliance into the patient's mouth, wherein the final appliance has a geometry selected to progressively reposition the teeth from the last intermediate arrangement to the final tooth arrangement.

- A method as in claim 7, wherein the appliances comprise polymeric shells 8. 10 having cavities shaped to receive and resiliently reposition teeth from one arrangement to a successive arrangement.
  - 9. A method as in claim 8, where the tooth positions defined by the cavities in each successive appliance differ from those defined by the prior appliance by no more than 2 mm.
  - 10. A method as in claim 7, wherein the successively placing step comprises placing at least two additional appliances prior to placing the final appliance.
  - 11. A method as in claim 10, wherein the successively placing step comprises placing at least ten additional appliances.
  - 12. A method as in claim 11, wherein the successively placing step comprises placing at least twenty-five additional appliances.
  - 13. A method as in claim 7, wherein the appliances are successively replaced at an interval in the range from 2 days to 20 days.
  - An improved method for repositioning teeth using appliances comprising 14. polymeric shells having cavities shaped to receive and resiliently reposition teeth to produce a final tooth arrangement, wherein the improvement comprises determining at the outset of treatment geometries for at least three appliances which are to be worn successively by a

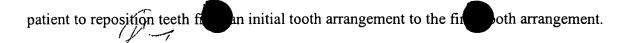
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- 15. An improved method as in claim 14, wherein at least four geometries determined at the outset.
- 16. An improved method as in claim 15, wherein at least ten geometries are determined at the outset.
- 17. An improved method as in claim 16, wherein at least twenty-five geometries are determined at the outset
  - 18. An improved method as in claim 14, wherein the tooth positions defined by the cavities in each successive geometry differ from those defined by the geometry by no more than 2 mm.
  - 19. A method for fabricating a dental appliance, said method comprising: providing a digital data set representing a modified tooth arrangement for a patient; controlling a fabrication machine based on the digital data set to produce a positive model of the modified tooth arrangement;

producing the dental appliance as a negative of the positive model; applying a lubricious composition to the surface of the dental appliance.

- 20. A method as in claim 19, wherein the controlling step comprises: providing a volume of non-hardened polymeric resin;
- scanning a laser to selectively harden the resin in a shape based on the digital data set to produce the positive model.
  - 21. A method as in claim 19, wherein the producing step comprises molding the appliance over the positive model.
  - 22. A method for fabricating a dental appliance, said method comprising: providing a first digital data set representing a modified tooth arrangement for a patient;

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producing a second that all data set from the first data set, where the second data set represents a negative model of the modified tooth arrangement;

controlling a fabrication machine based on the second digital data set to produce the dental appliance;

applying a lubricious composition to the surface of the dental appliance.

- 23. A method as in claim 22, wherein the controlling step comprises selectively hardening a non-hardened resin to produce the appliance and separating the appliance from the remaining liquid resin.
- 5 24. A method as in claim 22, wherein the appliance comprises a polymeric shell having a cavity shaped to receive and resiliently reposition teeth from an initial tooth arrangement to the modified tooth arrangement.
  - 25. A method as in claim 22, wherein the appliance is coated with a polar chemical to provide a hydrophilic surface.
  - 26. A method as in claim 25, wherein the chemical is one of hydrogels, 2-HEMA (2-hydroxy ethyl methacrylate), NVP (n-vinyl pyrolidone), or acrylyamide, PEO (polyethylene oxide) at various molecular weights, PPO (polypropylene oxide), MA (methacrylic acid), and AA (acrylic acid).
  - 27. A method as in claim 22, wherein the appliance is coated with a non-polar chemical to provide a hydrophobic surface.
- 28. A method as in claim 22, wherein the appliance is coated with an oily substance to provide a hydrophobic surface.
  - 29. A method as in claim 27, wherein the oily substance is either PTFE or silicone or mineral oil.
  - 30. A method as in claim 22, wherein the appliance is coated with a chemical to make its surface slippery.

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- 31. A method as in claim 22, wherein the appliance has a surface adapted to imbibe and hold a micromolecular layer of water to lubricate the lips or the side of the mouth.
- 32. A method as in claim 22, wherein the composition is applied by a spraying operation.
- 33. A method as in claim 22, wherein the composition is applied using an electrostatic discharge and further comprising baking the appliance.
  - 34. A method as in claim 22, wherein the composition is applied by a dipping operation.
    - 35. A method as in claim 22, wherein the surface of the appliance is pretreated.
  - 36. A method as in claim 35, wherein the precoating treatment includes one or more of the following: corona discharging, acid etching or solvent etching.
- 20 37. A method as in claim 35, wherein the precoating treatment includes one or more of the following: sanding, abrasing, tumbling and sand blasting.
- 38. A method as in claim 22, wherein the surface of appliance can be modified using one or more of the following: coating, grafting, laminating and interpenetrating networks.